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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,202	10/17/2003	James C. Payne	PAYN.001CIP	6661
40581	7590	08/24/2005	EXAMINER	
CRAWFORD MAUNU PLLC 1270 NORTHLAND DRIVE, SUITE 390 ST. PAUL, MN 55120			GRANT, ROBERT J	
			ART UNIT	PAPER NUMBER
			2838	
DATE MAILED: 08/24/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,202

Applicant(s)

PAYNE, JAMES C.

Examiner

Robert Grant

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. Claims 1,2, and 5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Landon (US 6,198,251). Although the conflicting claims are not identical, they are not patentably distinct from each other because Patent number 6,636,014, claim 1, discloses an arrangement for charging an equipment battery, the arrangement comprising a primary battery, and the arrangement is adapted to charge the equipment battery by a power connection from the primary battery to the equipment battery. Claim 1 does not expressly disclose charging a plurality of batteries and a charging circuit that automatically provides charge to each of the plurality of batteries one battery at a time. Landon discloses charging a plurality of batteries (Column 4, lines 3-7), and a charging circuit that automatically provides charge to each of the plurality of batteries (Figure 1), one battery at a time. It would have been obvious at the time of this invention to modify the apparatus to allow it to provide charge to a plurality of batteries as well as automatically alter the connections from one of the equipment batteries to the next in order to charge all the batteries without having to physically change the connection.

As to Claim 2, Patent number 6,636,014 in view of Landon disclose the limitations of claim 1, and further including a wiring harness assembly (Landon figure 2)

adapted to permit charging of the plurality of equipment batteries while the batteries are being towed (Claim 1, lines 1-3).

As to Claim 5, Patent number 6,636,014 in view of Landon disclose all the limitations of claim 2, and further disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to an indication that said one of the equipment batteries has reached a sufficiently-charged threshold level (Landon Column 4, lines 5-9).

2. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Landon in further view of Matsuda (US 5,563,493). As to Claim 3, Patent number 6,636,014 in view of Landon disclose all the limitations of claim 2. Patent number 6,636,014 in view of Landon do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a circuit-defined time interval. Matsuda discloses wherein the charging circuit automatically stops charging one of the equipment batteries by using a circuit-defined time interval (column 8, lines 33-37). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate the teachings of Matsuda with the sequential charger apparatus, for the benefit of having an accurate time controlled charging method, and

charging individual batteries for a predetermined period before switching to the next battery.

3. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Landon in further view of Kan et al. (US 5,168,205). As to Claim 4, Patent number 6,636,014 in view of Landon disclose all the limitations of claim 2. Patent number 6,636,014 in view of Landon do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a user-established time interval. Kan discloses wherein the charging circuit automatically stops charging one of the equipment batteries according to a user-established time interval (Column 9, lines 16-20). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine Kan's timer with sequential charging apparatus in order to grant the user control of how long he wants the battery to charge before switching to the next battery.

4. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Landon in further view of Kan and Rogers (US 5,528,148) As to Claim 6, Patent number 6,636,014 in view of Landon disclose all the limitations of claim 2. Patent number 6,636,014 in view of Landon do not expressly disclose wherein the charging

circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries at a time that is defined as a function of a user-defined expected travel time. Kan teaches a method of using a user set timer to control the length of charging (Column 9, lines 16-20). Rogers teaches of a battery monitoring and charging system where the estimated time of arrival is part of the information stored in vehicle memory (Column 16, lines 46-51). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teaching of Kan and Rogers to create a timing system that uses an inputted estimated time for arrival, and then use Landon's distributor to take the estimated time till arrive to provide charger to the batteries. This is a similar approach that Landon already discloses (Column 4, lines 15-22), with the exception that instead of using time to control the charging cycles he uses percentage charge. In a case where the time that power will be allotted to charge the batteries is know, it would be obvious to use timed cycles to sequentially charge the batteries, this would grant a more evenly distributed charge among the batteries by allowing them to charge an equal amount of time.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,2, 5, 7, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (US 5,583,414) in view of Landon (US 6,198,251).

As to Claim 1, Lawrence discloses an arrangement using a primary battery for charging a plurality of equipment batteries (Figure 6) configured electrically in and for operation in a trailered equipment (Element 44), the arrangement comprising: a cable (Element 62) for electrically connecting the primary battery (element 12) with the plurality of equipment batteries. Lawrence does not expressly disclose a charging circuit that is adapted to charge the equipment batteries by automatically alternating a power connection from the primary battery to each of the equipment batteries, one battery at a time. Landon discloses a charging circuit (figure 1) that is adapted to charge the equipment batteries by automatically alternating a power connection to each of the equipment batteries, one battery at a time (Column 4, lines 3-5). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Landon's sequential charging with Lawrence's system for charging a battery while in tow, by putting Landon's distributor in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.

As to Claim 2, Lawrence in view of Landon disclose the limitations of claim 1, and further including a wiring harness assembly (Landon figure 2) that is adapted to permit charging of the plurality of equipment batteries while the batteries are being towed (Lawrence Figure 1), and that includes the cable.

As to Claim 5, Lawrence in view of Landon disclose all the limitations of claim 2, and further disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to an indication that said one of the equipment batteries has reached a sufficiently-charged threshold level (Landon Column 4, lines 5-9).

As to claim 7, Lawrence discloses A vehicle-trailer arrangement for charging a plurality of equipment batteries configured electrically in and for operation in a trailered equipment, the arrangement comprising (Figure 1): a vehicle battery (Element 12). Lawrence does not expressly disclose a charging means for automatically charging the equipment batteries using an alternating power connection from the vehicle battery to each of the equipment batteries, one battery at a time. Landon discloses a charging circuit (figure 1) that is adapted to charge the equipment batteries by automatically alternating a power connection to each of the equipment batteries, one battery at a time (Column 4, lines 3-5). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Landon's sequential charging with Lawrence's system for charging a battery while in tow, by putting Landon's distributor in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.

As To claim 8. Lawrence discloses a vehicle-trailer arrangement (figure 1) using a primary battery (Element 12) located in a towing vehicle adapted to tow the trailered equipment, the arrangement for charging a plurality of trailered equipment

batteries in a trailered vehicle configured electrically in and for operation of at least one accessory adapted to be operated in the trailered equipment, the arrangement comprising: an electrical harness (Figure 6). Lawrence does not expressly disclose a charging circuit adapted to use the electrical harness to charge the trailered equipment batteries by automatically alternating a power connection from the primary battery to each of the trailered equipment batteries, one battery at a time. Landon discloses a charging circuit (figure 1) that is adapted to charge the trailered equipment batteries by automatically alternating a power connection to each of the equipment batteries, one battery at a time (Column 4, lines 3-5). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Landon's sequential charging with Lawrence's system for charging a battery while in tow, by putting Landon's distributor in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.

As to Claim 12, Lawrence in view of Landon disclose the limitations of claim 1, and Landon further discloses wherein the charging circuit is adapted to charge three equipment batteries, one at a time (Figure 1).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Landon as applied to claim 2 above, and further in view of Matsuda et al. (5,563,493).

As to Claim 3, Lawrence in view of Landon disclose all the limitations of claim 2. Lawrence in view of Landon do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a circuit-defined time interval. Matsuda discloses wherein the charging circuit automatically stops charging one of the equipment batteries by using a circuit-defined time interval (column 8, lines 33-37). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate the teachings of Matsuda with the sequential charger of Lawrence in view of Landon, for the benefit of having an accurate time controlled charging method, and charging individual batteries for a predetermined period before switching to the next battery.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Landon as applied to claim 2 above, and further in view of Kan et al. (5,168,205).

As to Claim 4, Lawrence in view of Landon disclose all the limitations of claim 2. Lawrence in view of Landon do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a user-established time interval. Kan discloses wherein the charging circuit automatically stops charging one of the equipment batteries according to a user-established time interval (Column 9, lines 16-20). It would have been obvious to a person having ordinary skill in the art at the time of

this invention to combine Kan's timer with Lawrence in view of Landon's sequential charger in order to grant the user control of how long he wants the battery to charge before switching to the next battery.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Landon as applied to claim 2 above, and further in view of Kan and Rogers (US 5,528,148).

As to Claim 6, Lawrence in view of Landon disclose all the limitations of claim 2. Lawrence in view of Landon do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries at a time that is defined as a function of a user-defined expected travel time. Kan teaches a method of using a user set timer to control the length of charging (Column 9, lines 16-20). Rogers teaches of a battery monitoring and charging system where the estimated time of arrival is part of the information stored in vehicle memory (Column 16, lines 46-51). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teaching of Kan and Rogers to create a timing system that uses an inputted estimated time for arrival, and then use Landon's distributor to take the estimated time till arrive to provide charger to the batteries. This is a similar approach that Landon already discloses (Column 4, lines 15-22), with the exception that instead of using time to control the charging cycles he uses percentage charge. In a case where the time that power will be allotted to charge the batteries is know, it would be obvious to use timed cycles to

sequentially charge the batteries, this would grant a more evenly distributed charge among the batteries by allowing them to charge an equal amount of time.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (US 5,583,414) in view of Landon (US 6,198,251) in further view of Nagai et al. (US 6291965).

As to Claim 9, Lawrence in view of Landon disclose all the limitation of claim 8. Lawrence in view of Landon do not expressly disclose a communication link. Nagai discloses a data communications link adapted to provide feedback to the charging circuit (Figure 13, element 127). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link, with the charger of Lawrence in view of Landon, in order to provide monitoring and control over various charging parameters.

As to Claim 10 Lawrence in view of Landon disclose all the limitation of claim 8. Lawrence in view of Landon disclose a charger which stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to one of the equipment batteries has reached a sufficiently-charged threshold level. Lawrence in view of Landon do not expressly disclose a communication link which transmits a sufficiently-charged signal of a battery. Nagai discloses a communication link adapted to provide feedback to the charging circuit (Figure 13, element 127), and wherein the charging circuit automatically stops charging (Figure 17,

element S10) one of the equipment batteries. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link and signal, with the charger of Lawrence in view of Landon in order to monitor and control the charging of the batteries.

As to Claim 11 Lawrence in view of Landon disclose all the limitation of claim 8. Lawrence in view of Landon disclose a charger which stops charging one of the equipment batteries and begins charging another of the equipment batteries. Lawrence in view of Landon do not expressly disclose a feedback means which transmits feedback data of a battery. Nagai discloses a feedback means adapted to provide feedback to the charging circuit (Figure 13, element 127), and wherein the charging circuit automatically stops charging (Figure 17, element S10) one of the equipment batteries. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link and signal, with the charger of Lawrence in view of Landon in order to monitor and control the charging of the batteries.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Landon in further view of Feldstein (US 5,646,504).

As to Claim 13, Lawrence in view of Landon disclose the limitations of claim 12, which claim 13 is dependent upon. Lawrence in view of Landon do not expressly discloses wherein at least two of the three equipment batteries are arranged in series. Feldstein discloses a charger wherein three batteries are arranged in series (column 7,

lines 21-23). It would have been obvious to a person having ordinary skill in the art at the time of this invention to arrange the batteries in a series connection such as Feldstein has, so as to allow an efficient method of charging a string of batteries.

Terminal Disclaimer

The terminal disclaimer was not signed.

Response to Arguments

11. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments filed 6-7-05 have been fully considered but they are not persuasive.

In response to the applicants arguments with regard to claims 1 and 2, which recite that the combination of Lawrence (US 5,583,414) in view of Landon (US 6,198,251) do not meet the limitations set forth in the claims. Lawrence is relied on for his teaching of charging batteries while in tow. Landon is relied upon for his teaching of the distributor, the battery connection to the distributor, and the operation of the distributor to charge the batteries. The combination of Lawrence in view of Landon, therefore do meet the limitations set forth in claims 1 and 2.

In response to the applicants arguments with regard to claim 3, which recite that the combination of Lawrence and Landon in view of Matsuda et al. (US 5,563,493), fail to teach that after the timer expires, the charger begins to charging another battery. The

examiner relies upon Matsuda to teach that a timer can be used to control the length of time that a charger will charge a battery. Landon's distributor is responsible for the control of charging particular batteries. Therefore, the combination of Matsuda's timer with the distributor of Landon, will create a device which relies upon timer to control how long the distributor charges one battery before moving to charge the next.

In response to the applicants arguments with regard to claim 4, which recite that Kan et al. (US 5,168,205) does not teach stopping the charging, merely changing the charging rate. The examiner acknowledges that Kan does not teach stopping the charging of the battery completely, but it does teach using a user-established timer interval for charging the battery for a particular time period at a particular charge, and upon the expiration of that time period, that particular charge is stopped. Therefore, one having ordinary skill in the art is more than capable of using this teaching and applying it to the device of Lawrence in view of Landon, and have the user-established timer interval control when the distributor switch between charging of the one battery to the charging of the other battery.

In response to the applicants arguments with regard to claim 5, the applicant points to Landon column 4, lines 11-13 and claims that there is no support for Landon meeting the limitations of claim 5. The examiner wishes to point out that column 4, lines 11-13, say that the connection between the distributor and the battery do not require any data communication link. Claim 5 does not recite a communication link, it only recites that

the charger begins charging another battery in response to an indication that the battery being charged has reached a sufficiently-charged threshold level. The examiner stands by his original rejection, and once again points to column 4, lines 5-9.

In response to the applicants arguments with regard to claim 6, the applicant feels that Rogers (US 5,528,148) fails to teach using travel time to influence the charging of the battery. The examiner points to Rogers for the teaching of estimating the travel time of a vehicle, and Kan teaches setting a user-established time interval. The Combination of Rogers and Kan, would allow the user to estimate the travel time and set the charge time based upon the estimated travel time.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG


Adolf Deneke Bernane
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